

AMENDED CLAIMS

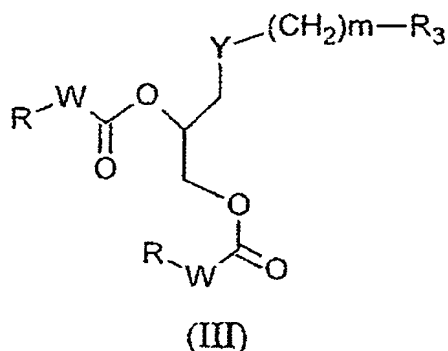
[Received by the International Office on 31 May 2005

(05.31.2005):

claims 1 - 22 replaced by claims 1 - 22.]

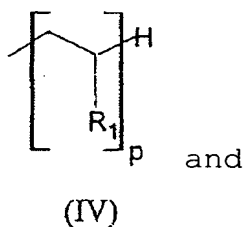
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1. A compound of formula (III):

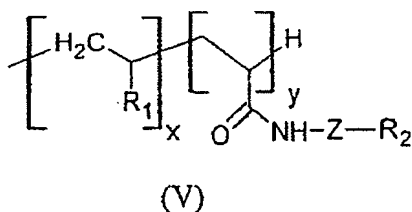


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in which R_3 represents a group chosen from:



and



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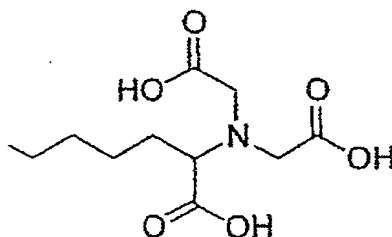
- Y represents a sulfur atom or an -NH-CO-(CH₂)_n-X group, X represents a sulfur atom S or a -CH₂- group; n is an integer ranging from 0 to 10;

- R represents a group chosen from: C₄-C₂₄ hydrocarbon-based radicals; C₄-C₂₄ fluorinated hydrocarbon-based radicals; C₄-C₂₄ thioalkyl radicals;

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- W represents an -NH- or -CH₂- group;
 - p represents an integer ranging from 1 to 50;
 - m is an integer ranging from 0 to 9, and, when X = CH₂, then 0 < m+n < 6;

- x represents an integer ranging from 1 to 30;
- y represents 0 or an integer ranging from 1 to 10;
- R₁ represents a hydrophilic group;
- 5 - R₂ represents a recognition group having an affinity for a biological target;
- Z is a spacer arm; Z is bound to R₂ by means of a bond which can be chosen from the functions -O-CO-, -CO-NH-, -NH-CO-NH-, -NH-CO-O-, O-CO-O-,
10 -O-, -CH=N- or -S- or by complexation of a nickel atom; Z is chosen from a peptide chain, an Ω -amino acid, ethanolamine, 3-propanolamine and a diamine of formula -NH-(CH₂)_{p'}-NH-, in which p' represents an integer ranging from 2 to 6, or -Z-R₂
15 represents a group NTA of the formula below:

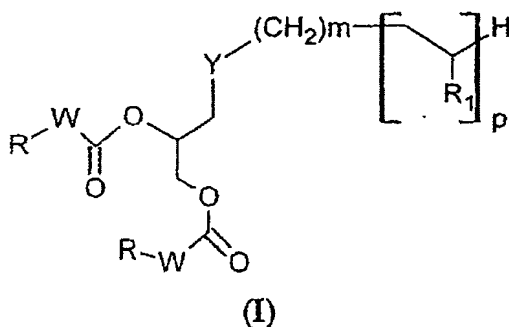


2. A compound as claimed in claim 1, characterized in that the group R is chosen from the following radicals:
- the thiooctyl radical,
 - n-butyl, tert-butyl, isobutyl, n-pentyl, isopentyl, n-hexyl, n-heptyl, n-octyl, n-nonyl, n-decyl, n-undecyl, n-dodecyl, n-tridecyl, n-tetradecyl, n-pentadecyl, n-hexadecyl, n-heptadecyl, n-octadecyl or the phytanyl radical (CH₃[CH(CH₃)(CH₂)₃]₃CH(CH₃)CH₂CH₂),
 - fluorinated hydrocarbon-based radicals corresponding to the formula -(CH₂)_t-(CF₂)_rF, in which r and t represent two integers with:

$$14 \geq r+t \geq 4.$$

3. A compound as claimed in either one of claims 1 and 2, corresponding to formula (I):

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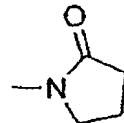
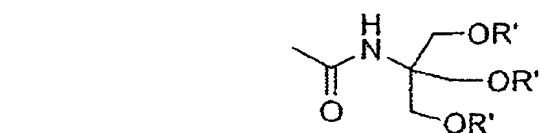


in which:

- Y represents a sulfur atom or a group

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$$-\text{NH}-\overset{\text{O}}{\parallel}(\text{CH}_2)_n-\text{X}-$$
, X being chosen from S and CH₂ groups, n is an integer ranging from 0 to 10;

- m is an integer ranging from 0 to 9; and, when X = CH₂, then 0 < m+n < 6;
- W represents an -NH- group or a -CH₂- group;
- p represents an integer ranging from 1 to 50;
- R₁ represents a group chosen from the following radicals:

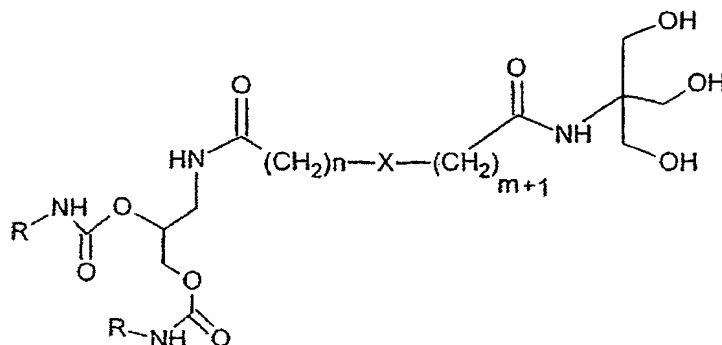


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in which R' represents H or a hydrophilic group;

- R represents a group chosen from: C₄-C₂₄ hydrocarbon-based radicals; C₄-C₂₄ fluorinated hydrocarbon-based radicals; C₄-C₂₄ thioalkyl radicals.
- 25

4. A compound as claimed in claim 3, characterized in that it corresponds to formula (IA):

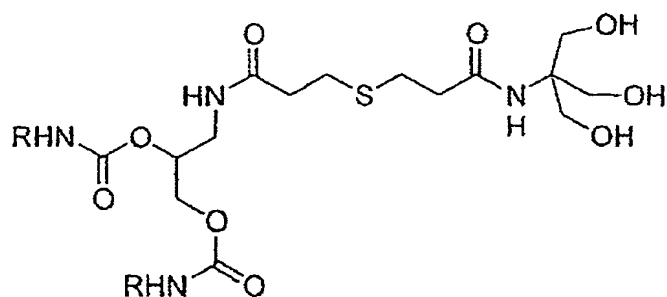


(IA)

in which:

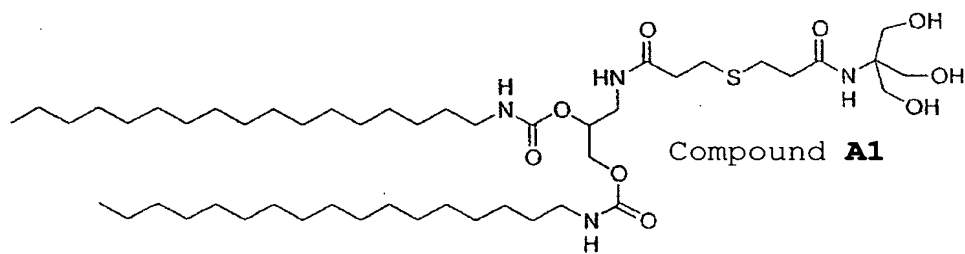
- X represents a sulfur atom S or a -CH₂- group;
- n is an integer ranging from 0 to 10;
- m is an integer ranging from 0 to 9;
- when X = CH₂, then 0 < m+n < 6;
- R represents a group chosen from: C₄-C₂₄ hydrocarbon-based radicals; C₄-C₂₄ fluorinated hydrocarbon-based radicals; C₄-C₂₄ thioalkyl radicals.

5. A compound as claimed in claim 4, characterized in that R is chosen such that (IA) has a phase transition temperature of greater than 37°C.
6. A compound as claimed in claim 4 or claim 5, characterized in that it corresponds to formula A:



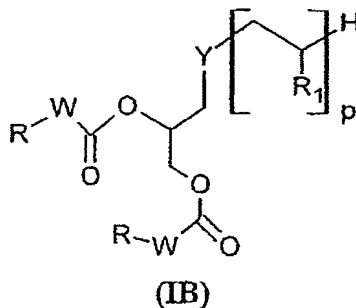
Formula A

- 5 7. A compound as claimed in claim 6, characterized in that it corresponds to formula **A1**:



8. A compound as claimed in claim 3, corresponding to formula (IB):

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in which:

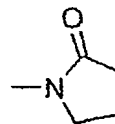
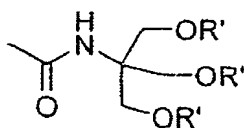
Y represents a sulfur atom or the -NH-CO-CH₂CH₂S- group;

W represents an -NH- group or a -CH₂- group;

p represents an integer ranging from 1 to 50;

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R₁ represents a group chosen from the following radicals:



5

in which R' represents H or a C₄-C₂₄ polyhydroxylated hydrocarbon-based compound;

R represents a group chosen from: C₄-C₂₄ hydrocarbon-based radicals; C₄-C₂₄ fluorinated hydrocarbon-based radicals; C₄-C₂₄ thioalkyl radicals.

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9. A compound as claimed in claim 8, characterized in that R is chosen such that (IB) has a critical micellar concentration of less than 10⁻⁵ M.

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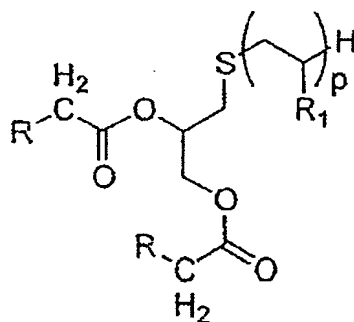
10. A compound as claimed in claim 8 or claim 9, characterized in that it satisfies one or more of the conditions below:

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- p represents an integer ranging from 1 to 5;
- Y represents S.

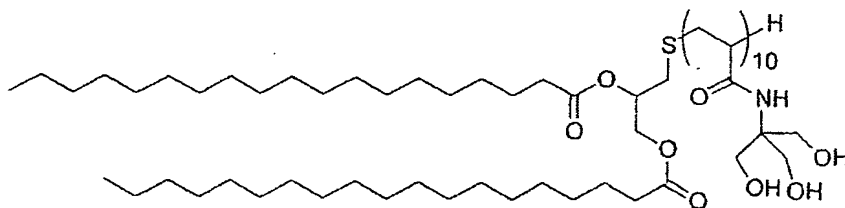
11. A compound as claimed in any one of claims 8 to 10, characterized in that it corresponds to formula C in which p represents an integer ranging from 5 to 15:

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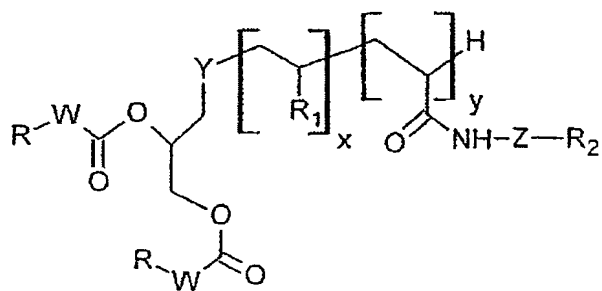
Compound C

12. A compound as claimed in claim 11, characterized
5 in that it corresponds to formula C1:



Compound C1

- 10 13. A compound as claimed in claim 1 or claim 2,
characterized in that it corresponds to formula
(II):



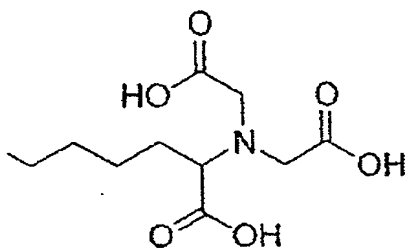
(II)

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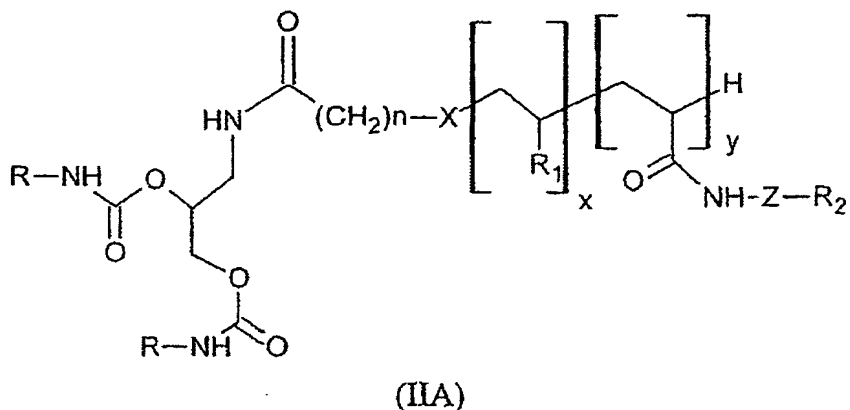
in which:

AMENDED SHEET (ARTICLE 19)

- Y represents a sulfur atom or the -NH-CO-(CH₂)_n-X- group in which X represents a sulfur atom S or a -CH₂- group, n is an integer ranging from 0 to 10;
- 5 - W represents an -NH- or -CH₂- group;
- x represents an integer ranging from 1 to 30;
- y represents 0 or an integer ranging from 1 to 10;
- R₁ represents a hydrophilic group;
- 10 - R₂ represents a recognition group having an affinity for a biological target;
- Z is a spacer arm; Z is bound to R₂ by means of a bond which can be chosen from the functions -O-CO-, -CO-NH-, -NH-CO-NH-, -NH-CO-O-, O-CO-O-,
- 15 -O-, -CH=N- or -S- or by complexation of a nickel atom; Z is chosen from a peptide chain, an Ω-amino acid, ethanolamine, 3-propanolamine and a diamine of formula -NH-(CH₂)_{p'}-NH-, in which p' represents an integer ranging from 2 to 6, or -Z-R₂
- 20 represents a group NTA of formula:

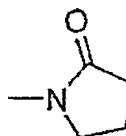
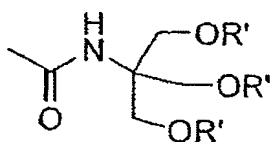


14. A compound as claimed in claim 13, characterized
- 25 in that it corresponds to formula (IIA):



15. A compound as claimed in claim 14, characterized in that one or more of the following conditions are met:

- X = S,
- n = 2,
- R₁ is chosen from the following radicals:



in which R' represents H or a C₄-C₂₄ polyhydroxylated hydrocarbon-based compound,

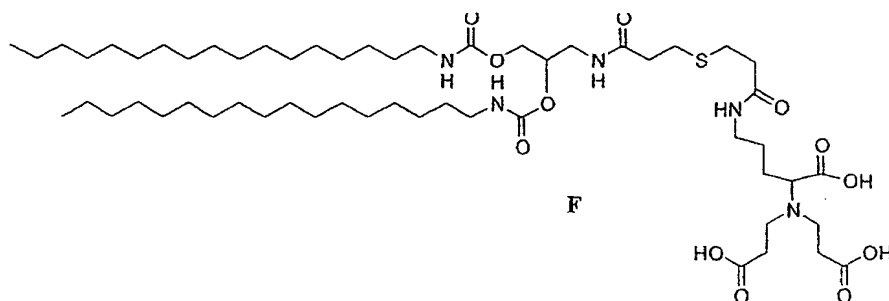
- R is chosen from the following radicals:

- the thiooctyl radical,
- n-butyl, tert-butyl, isobutyl, n-pentyl, isopentyl, n-hexyl, n-heptyl, n-octyl, n-nonyl, n-decyl, n-undecyl, n-dodecyl, n-tridecyl, n-tetradecyl, or the phytol radical (CH₃[CH(CH₃)(CH₂)₃]₃CH(CH₃)CH₂CH₂),
- fluorinated hydrocarbon-based radicals corresponding to the formula -(CH₂)_t-(CF₂)_rF, in which r and t represent two integers with: 14 ≥ r+t ≥ 4,

- R₂ is chosen from antibodies, antibody

fragments, small effector molecules that allow interaction with cell surface receptors, antigens, sugars and peptides.

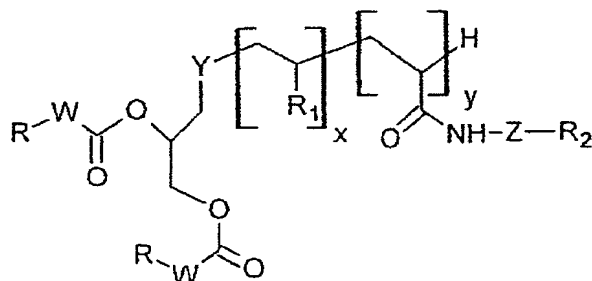
- 5 16. A compound as claimed in claim 15, characterized in that it corresponds to formula **F**:



Formula **F**

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17. A compound as claimed in claim 13, characterized in that it corresponds to formula (IIB):



(IIB)

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in which:

- Y represents a sulfur atom or the -NH-CO-CH₂CH₂S- group.

- 20 18. A nanoparticle, characterized in that it contains one or more compounds of formula (I) as claimed in any one of claims 3 to 12, as constituent of its

walls.

19. The nanoparticle as claimed in claim 18,
characterized in that it also contains from 1 to
5 5% of one or more compounds of formula (II) as
claimed in any one of claims 13 to 17.
20. The nanoparticle as claimed in either one of
claims 18 and 19, characterized in that it also
10 contains a telomer or a polymer of a monomer of
acrylic type contained in its inner aqueous
cavity.
21. A combination of a nanoparticle as claimed in any
15 one of claims 18 to 20 with a compound chosen
from: therapeutic active ingredients, cosmetic
substances, diagnostic agents and vaccines.
22. A therapeutic, diagnostic, vaccine or cosmetic
20 composition comprising at least one active
ingredient in combination with a liposome as
claimed in any one of claims 18 to 20.